

Patent claims

1. A layer system having at least one functional layer
formed from a metal oxide, wherein at least one
5 functional layer formed from a metal oxide comprises
titanium aluminum oxide.
2. The layer system as claimed in claim 1, wherein at least
one functional layer comprising titanium aluminum oxide
10 has at least one intermediate layer which interrupts it
and is formed from a metal oxide that is different than
the functional layer, the intermediate layer being
optically inactive.
- 15 3. The layer system as claimed in claim 2, wherein the
intermediate layer remains below a thickness at which it
can become optically active.
4. The layer system as claimed in claim 3, wherein the
20 layer thickness d_z of the intermediate layers is from
0.3 to 10 nm, preferably 0.5 to 4 nm, particularly
preferably 1.0 to 2.5 nm.
5. The layer system as claimed in claim 3 or 4, wherein the
25 intermediate layer comprises silicon oxide.
6. The layer system as claimed in claim 2, wherein the
intermediate layer has the same refractive index as the
functional layer comprising titanium aluminum oxide, so
30 that the intermediate layer can be rendered optically
inactive.
7. The layer system as claimed in claim 6, wherein the
intermediate layer comprises zirconium oxide.

8. A layer system having at least one functional layer formed from a metal oxide, wherein at least one intermediate layer comprising titanium aluminum oxide interrupts at least one functional layer formed from a metal oxide that is different than the intermediate layer, the intermediate layer being optically inactive.
9. The layer system as claimed in claim 8, wherein the intermediate layer comprising titanium-aluminum oxide remains below a thickness at which it can become optically active.
10. The layer system as claimed in claim 9, wherein the layer thickness d_z of the intermediate layers is from 0.3 to 10 nm, preferably 0.5 to 4 nm, particularly preferably 1.0 to 2.5 nm.
11. The layer system as claimed in claim 9 or 10, wherein the functional layer comprises silicon oxide.
12. The layer system as claimed in claim 8, wherein the functional layer has the same refractive index as the intermediate layer comprising titanium aluminum oxide, so that the intermediate layer can be rendered optically inactive.
13. The layer system as claimed in claim 12, wherein the functional layer comprises zirconium oxide.
14. The layer system as claimed in one of claims 1 to 13, wherein the layer comprising a titanium aluminum oxide consists of $Ti_xAl_{1-x}O_y$, where $0 < x < 1$.

15. The layer system as claimed in claim 14, wherein the refractive index n of the layer comprising titanium aluminum oxide can be set at $1.55 \leq n \leq 2.50$ by means of the quantitative ratio of titanium to aluminum.
- 5 16. The layer system as claimed in one of the preceding claims, wherein the layer system comprises a plurality of functional layers, preferably an alternating layer system composed of functional layers of metal oxides with high and low refractive indices.
- 10 17. The layer system as claimed in claim 16, wherein the functional layers of high refractive index comprise titanium aluminum oxide.
- 15 18. The layer system as claimed in claim 17, wherein the functional layers of low refractive index comprise silicon oxide.
- 20 19. The layer system as claimed in claim 18, wherein functional layers of a high refractive index comprising titanium aluminum oxide are interrupted by intermediate layers of low refractive index comprising silicon oxide and/or functional layers of low refractive index comprising silicon oxide are interrupted by intermediate layers of high refractive index comprising titanium aluminum oxide.
- 25 20. The layer system as claimed in one of claims 1 to 19, wherein the layers are produced by means of chemical vapor deposition processes, preferably plasma-enhanced, in particular by means of pulsed plasma-enhanced CVD processes.
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21. The layer system as claimed in one of claims 1 to 19, wherein the layers are produced by means of PVD processes.
- 5 22. The layer system as claimed in one of claims 1 to 19, wherein the layers are produced by means of sol-gel processes.
- 10 23. An illumination body which has a coating comprising the layer system as claimed in one of claims 1 to 22.
24. The illumination body as claimed in claim 23, which is an IRC lamp or an IRC torch.
- 15 25. A reflector which has a coating comprising the layer system as claimed in one of claims 1 to 22.
26. The reflector as claimed in claim 25, which is a glass-ceramic reflector.